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ABSTRACT

In a study conducted to show the importance of sentence connections as a way of looking at a writer's cognitive processes, three devices used to achieve coherence in written discourse were compared and proved to be unequally effective. The devices were cohesion (use of a textual reference in a sentence that has an antecedent in a preceding sentence), major argument overlap (use of a reference that is a relational concept to a proposition in a preceding sentence), and the given/new obligation that requires that each sentence convey two kinds of information-given information and new information. Given information is information writers believe readers already know either from prior knowledge or from preceding sentences. New information is information writers believe readers do not yet know or are not thinking about until writers call attention to it. This given/new obligation demands that the writer arrange material so that readers' expectations are fulfilled. Since subjects in the study did not remember sentences that had only major argument overlap and textual cohesion, it was concluded that in the absence of shared prior knowledge, the fulfillment of the given/new obligation is necessary for coherence. (AEA)

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Connections, Coherence, and Cognition in Composition

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Last year at the "Learning to Write" Conference in Ottawa, we reported on a study we did to show the importance of sentence connections as a way of looking at cognitive processes in writing. We concluded in that paper that sentence connections are particularly significant because the nature of the sentence connection may be closely linked to the thinking processes of the writer. We drew that conclusion after testing our hypothesis that in a memory test, writers will remember the second sentence of a pair of clearly connected sentences, but will not remember the second sentence in a pair of not so clearly connected sentences.

For each of the seven writers in our study we tested three pairs of clearly connected sentences and two pairs of not so clearly connected sentences taken from term papers they wrote for a psychology honors course. Let's look at one writer's attempt to remember the second sentence in an unconnected pair to see how this experiment worked. On page 1 of the handout, we see a pair of not so clearly connected sentences, Original Sentence 1 and Original Sentence 2 taken from Writer AE's term paper:

ORIGINAL SENTENCE 1: Stressing again the importance of internalized information, Goodman has written that children speaking any dialect "can be taught by building upon their linguistic competence, their strengths rather than their weaknesses."

ORIGINAL SENTENCE 2: He notes that the English spelling system cuts across dialects- "picture" is spelled the same way by everyone, no matter how it is pronounced - and therefore predicts success as soon as instructors stop "rejecting children's language and start building on it."

Writer AE was given a facilile of the page from his paper on which these sentences occurred. You can see in B on page 2 of your handout that

that facsimile included Original Sentence 1 only. In the central memory task of the experiment, he was asked to try to remember verbatim Original Sentence 2, the next sentence he had written in his paper, and to write that sentence on the facsimile. B shows that he has not remembered Original Sentence 2 from his paper.

Consistent with our hypothesis, the results of this procedure showed that, like Writer AE, writers remembered the second sentence in only 2 out of 14 unconnected sentence pairs, but they remembered the second sentence in 18 out of 21 connected sentence pairs.

We want to return at the end of our paper today to this study to look at the problem of what the unremembered sentences - the ones we called unconnected - have in common with each other. We want to return to Writer AE's sentences as a way of looking at the problem of coherence in a complex example from student writing, but before we do that we need first, to note a general principle about writers' intentions; second, to discuss two devices traditionally mentioned in discussions of coherence; and third, to add to those devices a discussion of some cognitive processes we think are central to coherence.

The general principle which operates with regard to writers' intentions is one of which we may not even be aware. That principle operates when we read consecutive sentences in that when we read, we assume that the writer is co-operating with us. We assume that the writer is intending to make sense in the form of connected discourse.

C on page 3 of your handout illustrates this principle. (Marvin doesn't want to leave Pittsburgh. He says early settlers called it Fort Pitt.) The reason the second sentence seems strange to us is that we are

are assuming that the writer is being co-operative, and even though it is not clear to us how the second sentence relates to Marvin's not wanting to leave Pittsburgh, we have begun to try to connect those ideas in our minds. We do this because we are adhering to what you may recognize as Grice's Co-operative Principle, and are assuming that the writer is intending to write connected discourse, that is, the writer is intending to be coherent.

With the Co-operative Principle in mind, let's look at two specific devices a writer can use to achieve coherence in written discourse. The first device can be explained by reference to the text, what Halliday and Hasan call cohesion. Look at D on page 3 of the handout. (Marvin doesn't want to leave Pittsburgh. He thinks it's one of America's livable cities.) These sentences illustrate some of the cohesive ties a writer can use for coherence. In these sentences there are cohesive ties of reference between Marvin and he, and Pittsburgh and it' and a lexical tie between Pittsburgh and city that contribute to the coherence of these two sentences.

Another device writers can use to achieve coherence is major argument overlap in propositional notation. This aspect of coherence makes reference, not to text, but to meaning. We cannot go into the complexities of propositional notation here, but we do need to note that it is a way of representing meaning in elementary linguistic units consisting of a predicate, or relational concept, followed by what are called arguments. Look at E on page 3 of the handout. (Marvin doesn't want to leave Pittsburgh. He thinks it's one of America's livable cities.) Underneath each sentence is its propositional representation. In the first sentence, for example, leave is the predicate and Marvin and Pittsburgh are arguments. We can see

from these propositional notations that there is major argument overlap between Sentences 1 and 2 to contribute to the coherence of these sentences. That is, Marvin in Sentence 1 overlaps with He in Sentence 2, and Pittsburgh in Sentence 1 overlaps with cities in Sentence 2. These two sentences not only have textual cohesion, they also have major argument overlap.

But are the devices of textual cohesion and major arguement overlap necessary for coherence? The answer is No. Look at F on page 3 of the handout. (Marvin doesn't want to leave Pittsburgh. Superbowl Champs and World Series Heroes can't be found everywhere.) These sentences have neither major argument overlap nor textual cohesion, yet if you know anything at all about Pittsburgh from what has been said or written about it over the past year, these sentences are coherent. They are coherent because writer and reader, like speaker and hearer in speech, share a knowledge about sports championships which the writer brings into focus through the reference to Pittsburgh. The writer has assumed that the reader will be able to bridge the gap between these two sentences because both writer and reader share prior knowledge. The point here is that coherence in these sentences comes from shared prior knowledge, and in this case, neither major argument overlap nor textual cohesion are necessary for coherence.

By looking at G on page 4 of the handout, we can see that, not only are they unnecessary for coherence, but also they are insufficient. (Marvin doesn't want to leave Pittsburgh. He says early settlers called it Fort Pitt.) These two sentences do have major argument overlap in Marvin/he, Pittsburgh/it and Pittsburgh/Fort Pitt, as well as cohesive ties of reference, but they are not coherent.

Why aren't they coherent? We can begin to describe the problem. Since

textual cohesion and major argument overlap are neither necessary nor sufficient for coherence, we propose that central to coherence in written discourse are the cognitive processes in shared prior knowledge as we saw in the super bowl example and also the processes of attention and expectation entailed by the given/new contract. The given/new contract requires that each sentence convey two kinds of information, given information and new information. Given information is information writers believe readers already know. Given information is, in a sense, on stage, or in the air as Chafe puts it. New information, on the other hand, is information writers believe readers do not yet know or are not thinking about until writers call attention to it. New information in one sentence becomes given information in the following sentence.

This given/new obligation demands that the writer arrange material so that readers expectations are fulfilled. Let's exame those demands to structure ideas relative to expectations of readers and what happens when writers do not fulfill those demands. From the first sentence in G, we are aware of Marvin's not wanting to leave Pittsburgh. That new information from the first sentence becomes the given information in the second sentence. We expect, in the second sentence, to hear added information that we do not yet know concerning that given information. That is, we expect to hear new material relating to Marvin's not wanting to leave Pittsburgh.

The problem in our sentences from G is that the writer has violated our expectations of what new material could reasonably follow, given information that a person named Marvin doesn't want to leave Pittsburgh. We think that in the second sentence the writer will say something relevant to that given information, but instead, the writer offers us historical information and violates our expectations, causing us to perceive these two sentences as not coherent. All of this is to say that discussions of coherence must include

not only consideration of shared prior knowledge, but also devices writers use to manipulate readers' attention, and limits imposed on writers by readers' expectations that writers will fulfill the given/new obligation.

We return now to our question from the study we reported in Ottawa. What do the unremembered unconnected sentences have in common? We find that the unconnected sentences violate the given/new obligation even though they have textual cohesion and major argument overlap. Let's look again at Writer AE's unremembered sentence pair from our earlier discussion, H, on page 4 of your handout:

ORIGINAL SENTENCE 1: Stressing again the importance of internalized information, Goodman has written that children speaking any dialect "can be taught by building upon their linguistic competence, their strengths rather than their weaknesses."

ORIGINAL SENTENCE 2: He notes that the English spelling system cuts across dialects - "picture" is spelled the same way by everyone, no matter how it is pronounced- and therefore predicts success as soon as instructors stop "rejecting children's language and start building on it."

Writer AE has written two consecutive sentences which have major argument overlap in Goodman/he, as well as lexical cohesive ties between building and building on, and taught and instructors. The problem in coherence comes with the expectations the writer raises for the reader, relative to the given/new obligation. Our expectations tell us that what is new in the first sentence; building on linguistic competence, strengths; should be treated as given in the second sentence. We expect to hear new information in the second sentence about building on linguistic competenec, about strengths. Specifically, the problem in that second sentence comes with our

expectation that the writer will connect the new information about the English spelling system and success to the given information about building linguistic competence of the first sentence. But that connection is not made for us by the writer. The given information of the first sentence is dropped entirely in the second sentence for more new information about spelling systems and predictions of success.

On the other hand, these sentences could be coherent if we have shared prior knowledge to help us bridge the gap as in our super bowl example. But these sentences fail that test, also, because we do not have in memory information about the relationship of spelling systems to linguistic competence. Our expectation that new information in the first sentence will be treated as given information in the second sentence is not met and our shared prior knowledge doesn't bridge the gap either. We perceive these sentences as not coherent.

It is interesting to note that in the memory test, Writer AE corrects this given/new violation. Look at H of the handout to examine Remembered Sentence 2, the hand-written sentence from the facsimile you saw earlier.

REMEMBERED SENTENCE 2: In the traditional structure and by the dictates of conventional reading methodology, such strengths are consistently ignored.

Writer AE connects Remembered Sentence 2 to Original Sentence 1 by honoring the given/new obligation in making strengths (that is, building on linguistic competence) the given information in the second sentence and by adding the new information that they have been ignored. We suppose in cases like this one, that the writer is not remembering, but instead, is reconstructing according to what he thinks ought reasonably to follow, that is, according to the given/new contract.

In conclusion, what the unconnected sentences in our study have in common is certainly difficult to characterize because our students' writing is very complex and coherence is more often than not very subtle. While textual cohesion and major argument overlap support coherence, we think that in the absence of shared prior knowledge, the fulfillment of the given/new obligation is necessary for coherence. Subjects in our study remember sentences that share prior knowledge and that honor the given/new obligation; whereas, they do not remember sentences that have only major argument overlap and textual cohesion.

HANDOUT

Connections, Coherence, and Cognition in Composition

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A. ORIGINAL SENTENCE 1: Stressing again the importance of internalized information, Goodman has written that children speaking any dialect "can be taught by building upon their linguistic competence, their strengths rather than their weaknesses.

ORIGINAL SENTENCE 2: He notes that the English spelling system cuts across dialects - "picture" is spelled the same way by everyone, no matter how it is pronounced - and therefore predicts success as soon as instructors stop "rejecting children's language and start building on it."

B. Stressing again the importance of internalized information, Goodman has written that children speaking any dialect "can be taught by building upon their linguistic competence, their strengths rather than their weaknesses." In the traditional classroom structure, and by the dictates of conventional reading methodology, such strengths are consistently ignored.

C. Marvin doesn't want to leave Pittsburgh. He says early settlers called it Fort Pitt.

D. Marvin doesn't want to leave Pittsburgh. He thinks it's one of America's livable cities.

Cohesive ties: reference: Marvin/he
Pittsburgh/it

lexical: Pittsburgh/city

E. Marvin doesn't want to leave Pittsburgh. He thinks it's one of America's livable cities.

Proposition List		Proposition List	
	Predicate(Argument)		Predicate(Argument)
1.	Leave(Marvin, Pittsburgh)	1.	Think(He, 2,3,4)
2.	Not(want(Marvin,1)	2.	ISA(Pittsburgh, city)
		3.	American(City)
		4.	Livable(City)

F. Marvin doesn't want to leave Pittsburgh. Super Bowl Champs and World Series Heroes can't be found everywhere.

G. Marvin doesn't want to leave Pittsburgh. He says early settlers called it Fort Pitt.

Cohesive ties: reference: Marvin/he
Pittsburgh/it
Pittsburgh/FortPitt

H. Writer AE

Original Sentence 1: Stressing again the importance of internalized information, Goodman has written that children speaking any dialect "can be taught by building upon their linguistic competence, their strengths rather than their weaknesses."

Original Sentence 2: He notes that the English spelling system cuts across dialects - "picture" is spelled the same way by everyone, no matter how it is pronounced - and therefore predicts success as soon as instructors stop "rejecting children's language and start building on it."

Cohesive ties: lexical: building/building
taught/instructors

Remembered Sentence 2: In the traditional structure and by the dictates of conventional reading methodology, such strengths are consistently ignored.